

REMARKS

Reconsideration of the issues raised in the above referenced Office Action is respectfully solicited.

The Abstract has been amended as requested to remove legal phraseology and to limit the number of words. Approval of the amended Abstract is respectfully requested.

The objection to Claim 6 has been considered. Claim 6 has been amended as suggested. Further, the claims have been amended to remove reference numerals and to clarify the antecedent basis of various elements recited therein. The scope of Claims 1-8 is not changed by the amendments. Claims 9-13 were amended to remove reference numerals and address informalities therein. Entry of the amendments is respectfully requested.

The rejection of Claims 1-13 under 35 USC §103 as being unpatentable over Lamberg, U.S. Patent No. 6 039 515 in view of Hale, U.S. Patent No. 4 558 975 has been considered.

Lamberg discloses a drill having radially overlapping indexable cutting inserts. The inner insert 16 as illustrated in Figure 11 includes first chamfer 28A and second chamfer edge 29A on opposing ends of a major cutting edge 26A. The square outer insert 17 of Lamberg has rounded corners.

Lamberg discloses that the inserts are seated in the bit body in the region of chip flutes, that the inserts project with their major cutting edges axially beyond the bit body and that the inserts radially overlap one another. The outer insert 17 projects radially beyond the bit body and has a setting angle of about 2-3° for the secondary cutting edge with respect to the length of the bit body.

As discussed above, the outer insert 17 shown in Figure 11 of Lamberg has square sides with rounded corners. There is no disclosure or suggestion of the outer insert being "subdivided in its longitudinal extent into a radially inner working section and a peeling section adjoining said working section on the outside and extending up to the outer insert corner, said working and peeling section enclosing an angle of

95° to 110° with one another" as recited in Applicants' Claim 1. Therefore this feature is not present in Lamberg, as Figure 11 therein merely illustrates a rectangular outer insert 17 with rounded corners and thus no separate working and peeling sections.

Further, the Office Action appears to reference column 2, lines 55-59 of Lamberg for the disclosure of a peeling section. No such "peeling" section is disclosed in Lamberg. Further, the term "peeling" does not appear anywhere in Lamberg.

Hale discloses a drill with disposable inserts. As illustrated in Figure 4 of Hale, each of the inserts has eight sides. The inner and outer inserts are identical as discussed at column 4, lines 1-19 of Hale. This arrangement differs from Lamberg, which provides different shapes for the inner and outer inserts.

The Office Action indicates that Hale discloses a working section 420 and a peeling section 429. This statement is traversed as each of the inserts 414 in Hale has octagonal side faces. Column 3, lines 8-16 of Hale states that the cutting edges are divided by an angle that may vary from 135° to 170°.

There is no motivation, absent Applicants' specification, to modify the rectangular outer inserts of Lamberg with the eight sided arrangement of Hale. Further, changing the entire shape of the outer insert of Lamberg would not have been obvious.

Further, Applicants' Claim 3 recites that the peeling section, toward the outer insert cover, "is set at a positive setting angle of 72° to 87° relative to an end face of the drill bit body". The peeling section 52 for an outer insert illustrated in Applicants' Figure 3 is not disclosed or present in either Lamberg or Hale. This arrangement also differs from Hale, wherein the cutting edge 429 has an angle greater than 90° with respect to the end face of the drill bit body.

Applicants' Claim 4 recites that a "transition point between the working section and the peeling section of the main cutting edges is rounded off convexly". This feature as illustrated by reference numeral 54 in Applicants' Figure 3, is not believed present in the applied prior art.

The Office Action further indicates that outer cutting edge 420 illustrated in Figure 4 of Hale comprises a working section and that cutting edge 429 comprises a peeling section. This statement is not understood, as the cutting edge 429 is on a different side and thus in a different plane than the working section 420. Moreover, the cutting edge 429 of Hale acts as a secondary cutting edge, rather than a peeling section.

For the above reasons, Claim 1, and Claims 2-8 dependent therefrom, distinguish Lamberg in view of Hale.

Applicants' independent Claim 9 now recites an outer insert "having at least one main cutting edge extending between a first and a second insert corner, and an adjacent secondary cutting edge adjoining the first insert corner, wherein the main cutting edge is subdivided in its longitudinal extent into a rectilinear working section and an adjoining rectilinear peeling section extending up to the first insert corner, said sections enclosing an angle of 95° to 110° with one another".

As discussed above, there is no motivation to modify the rectangular shaped outer insert 17 of Lamberg in view of Hale to obtain Applicants' claimed invention. The rectangular outer insert of Lamberg is not discussed extensively therein. Instead, Lamberg is directed to and emphasizes claims directed to the central insert having various cutting edges and rake surfaces.

Applicants' amended Claim 9 emphasizes that the insert is an "outer insert". Thus, the proposed modifications of Lamberg in view of Hale for the rectangular insert of Lamberg are not understood, except to attempt to obtain Applicants' claimed invention.

For the above reasons Claim 9, and Claims 10-13 dependent therefrom, distinguish Lamberg in view of Hale.

Added Claim 14, which depends from Claim 9, recites that the peeling section is "set at a positive setting angle of 72° to 87° relative to an end face when the outer insert is secured to a drill bit body". This feature clearly is not illustrated in the applied prior art as discussed above with respect to Applicants' Claim 3.

Independent Claim 15, and Claims 16-20 dependent therefrom also distinguish the applied prior art. Claim 15 recites a drilling tool including a drill bit body, an inner insert and a radially outer insert having a front-end main cutting edge and an adjoining secondary cutting edge meeting at an outer insert corner. Claim 15 further recites that "to permit burr-free through drilling the front-end main cutting edge of the outer insert is subdivided along the length thereof into a radially inner working section and a peeling section, the peeling section adjoining the working section and extending radially outwardly to the outer insert corner."

As discussed above, this structure is not present in the applied prior art. While Hale is relied on to show this feature, the peeling section 429 as defined therein does not both adjoin the working section defined as 420 and extend radially outwardly to the outer insert corner, which corresponds to corner 417 in Hale. Instead, the corner 417 of Hale divides the cutting edge 420 that is considered a working surface in the Office Action and the secondary cutting surface 429 which is considered a peeling section in the Office Action.

For the above reasons independent Claim 15, and Claims 16-20 dependent therefrom, distinguish the applied prior art. Further, Claims 16-20 disclose other features that distinguish the applied prior art. For example, Claim 18 distinguishes the prior art for the reasons discussed above with respect to independent Claim 3.

For the above reasons, allowance of Claims 1-20 is respectfully requested.

Further and favorable reconsideration is respectfully solicited.

Respectfully submitted,



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